

Access to Analogs for Future Research

Ronita L. Cromwell, PhD
HHC Deputy Element Scientist
Universities Space Research Association



Overview

- ▶ Analog access: new perspective
- ▶ Bed rest analog facilities
 - ▶ UTMB
 - ▶ :envihab
- ▶ Isolation and confinement analog sites
 - ▶ HERA
 - ▶ Russian Chambers

Analog Access: New Perspective

- ▶ Currently, individual studies requiring analog environments are selected and the appropriate analog for each individual study is determined.
 - ▶ If multiple studies can use the same analog, a complement of studies can be formed
- ▶ Solicit for campaigns
 - ▶ NRA solicitation for 30-day HERA campaign in 2016
 - ▶ Efficient use of analog site
 - ▶ Ensures access to analog site

Bed Rest Analog Facilities

- ▶ NASA FARU closed December 31, 2014.
 - ▶ UTMB plans to offer a “fee for service” structure so that studies can be completed at the ITS-CRC on an as needed basis
- ▶ HRP to utilize international sites for bed rest studies
 - ▶ :enviHab in Cologne, Germany
 - ▶ NASA bed rest campaigns
 - ▶ Collaborations with International Partners through joint solicitations (ILSRA)



:envihab

- ▶ :envihab - Located at DLR in Cologne, Germany
- ▶ Features
 - ▶ Bed rest facility
 - ▶ Air composition
 - ▶ Medical imaging (PET- MRT, bone CT, MRI)
 - ▶ Human centrifuge
 - ▶ Physiology laboratory
 - ▶ Air pressure
 - ▶ Nutritional support
 - ▶ Psychology laboratory
 - ▶ Virtual reality



:envi hab Module

M1: Humanzentrifuge

M2: Physiologielabor

M3: Schlaftrakt

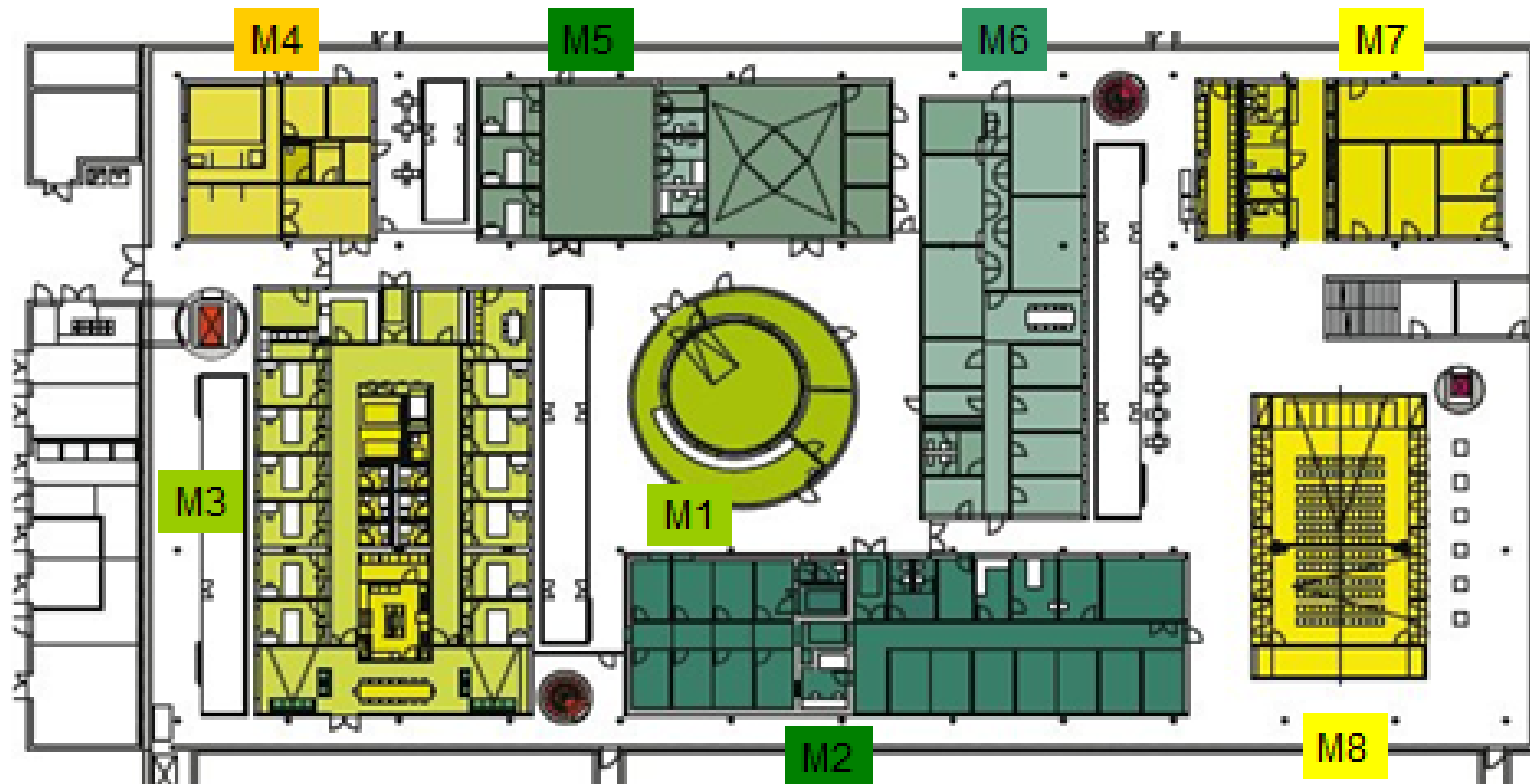
M4: MRT, PET, CT

M5: Psychologielabor

M6: Biologie, med. Infrastruktur

M7: Infrastruktur/ Logistik

M8: Auditorium



Isolation and Confinement Analog Sites

► HERA

- 14-day missions in 2015
- 30-day missions in 2016
 - NRA solicitation for complement studies
- Plans for international collaboration

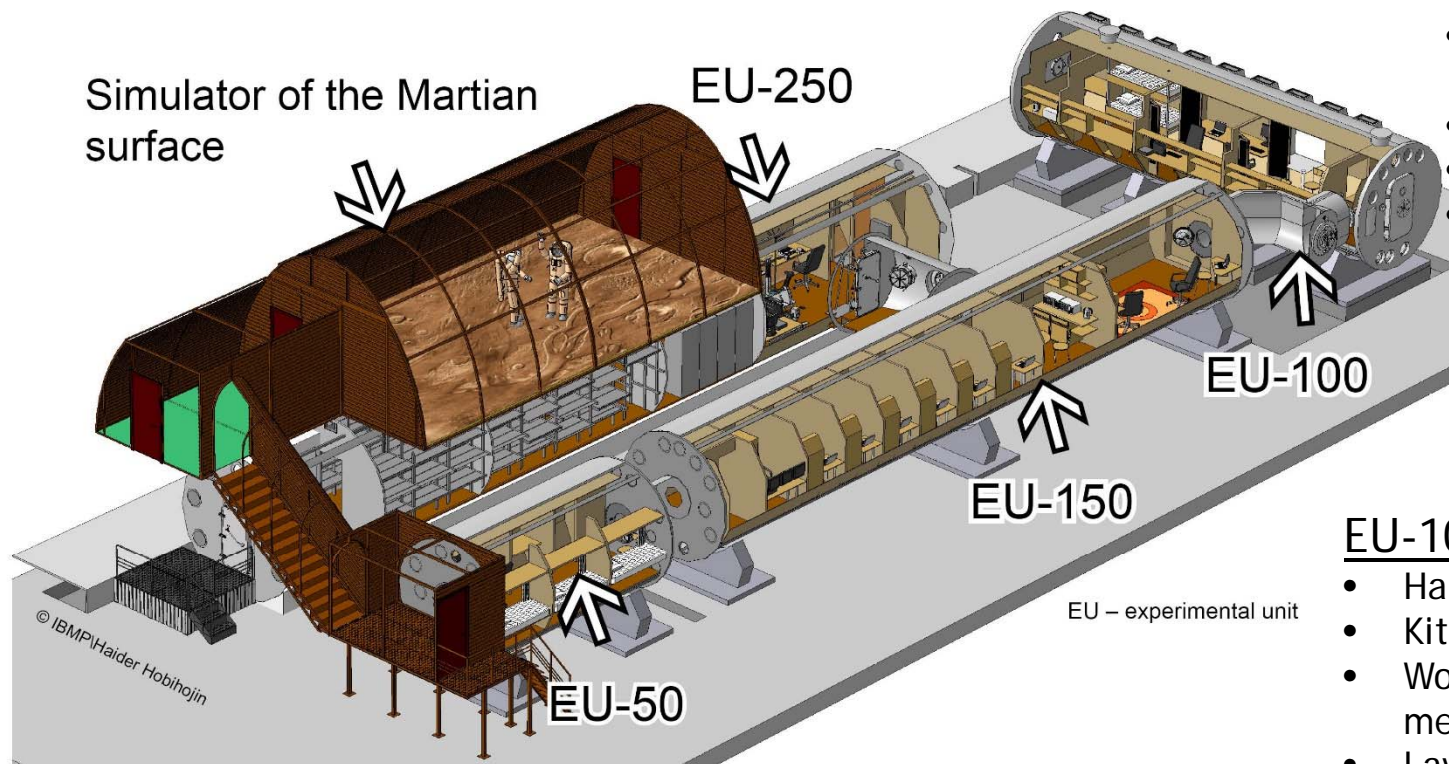


Isolation and Confinement Analog Sites

- ▶ Russian Chambers - Ground-based Experimental Facility (NEK)
 - ▶ Longer studies, up to 1 year (2017-2019)
 - ▶ NASA campaigns
 - ▶ Collaborations with International Partners through joint solicitations (ILSRA)



The general view of the medical-technical experimental facility



EU-50

- Simulator of the landing Martian ship

EU-150

- 6 individual compartments
- Community Room
- Main Console
- Kitchen
- Lavatory

EU-250

- Gym
- Greenhouse
- Storage for resources
- Refrigerator
- Thermal Chamber
- Lavatory

EU-100

- Habitable Compartment
- Kitchen & Dining Room
- Working places with medical equipment
- Lavatory

EU – experimental unit

Questions?

